



U.S. DEPARTMENT OF  
**ENERGY**

OFFICE OF  
**ENVIRONMENTAL  
MANAGEMENT**

## **EM FY 2014 Budget Rollout Presentation**

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- ❖ The mission of the DOE Office of Environmental Management (EM) is to complete the safe cleanup of the environmental legacy brought about from five decades of nuclear weapons development and government-sponsored nuclear energy research.
- ❖ EM's work supports DOE Strategic Goal #3: "Enhance nuclear security through defense, nonproliferation, and environmental efforts."
- ❖ The budget positions the EM program to meet all its FY 2014 enforceable cleanup milestones.



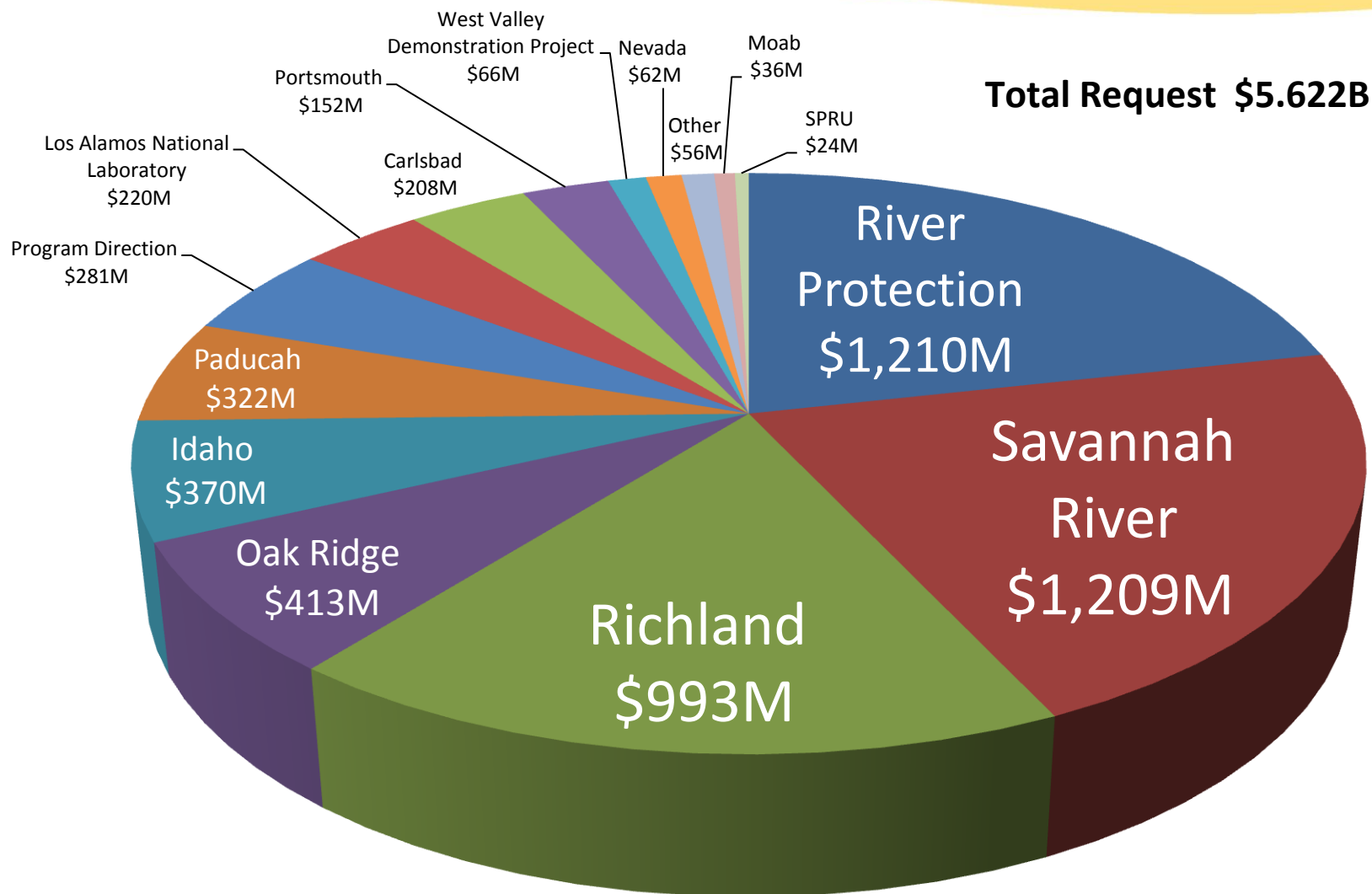
# EM Budget Summary (Appropriation)

(\$ in millions)

Approp	FY 2012 Current	FY 2013 Annualized CR	FY 2014 Request	\$ Change vs FY 2012	% Change vs FY 2012
Defense Environmental Cleanup	5,006	5,037	5,317	311	6.2%
Non-Defense Environmental Cleanup	235	237	213	(22)	-9.4%
Uranium Enrichment D&D Fund	472	475	555	83	17.6%
Subtotal, EM	5,713	5,749	6,085	372	6.5%
UED&D Fund Offset: *	-	-	(463)	(463)	100.0%
Defense Prior Year Offset:	(3)	(3)	-	3	-100.0%
Total, EM	5,710	5,746	5,622	(88)	-1.5%

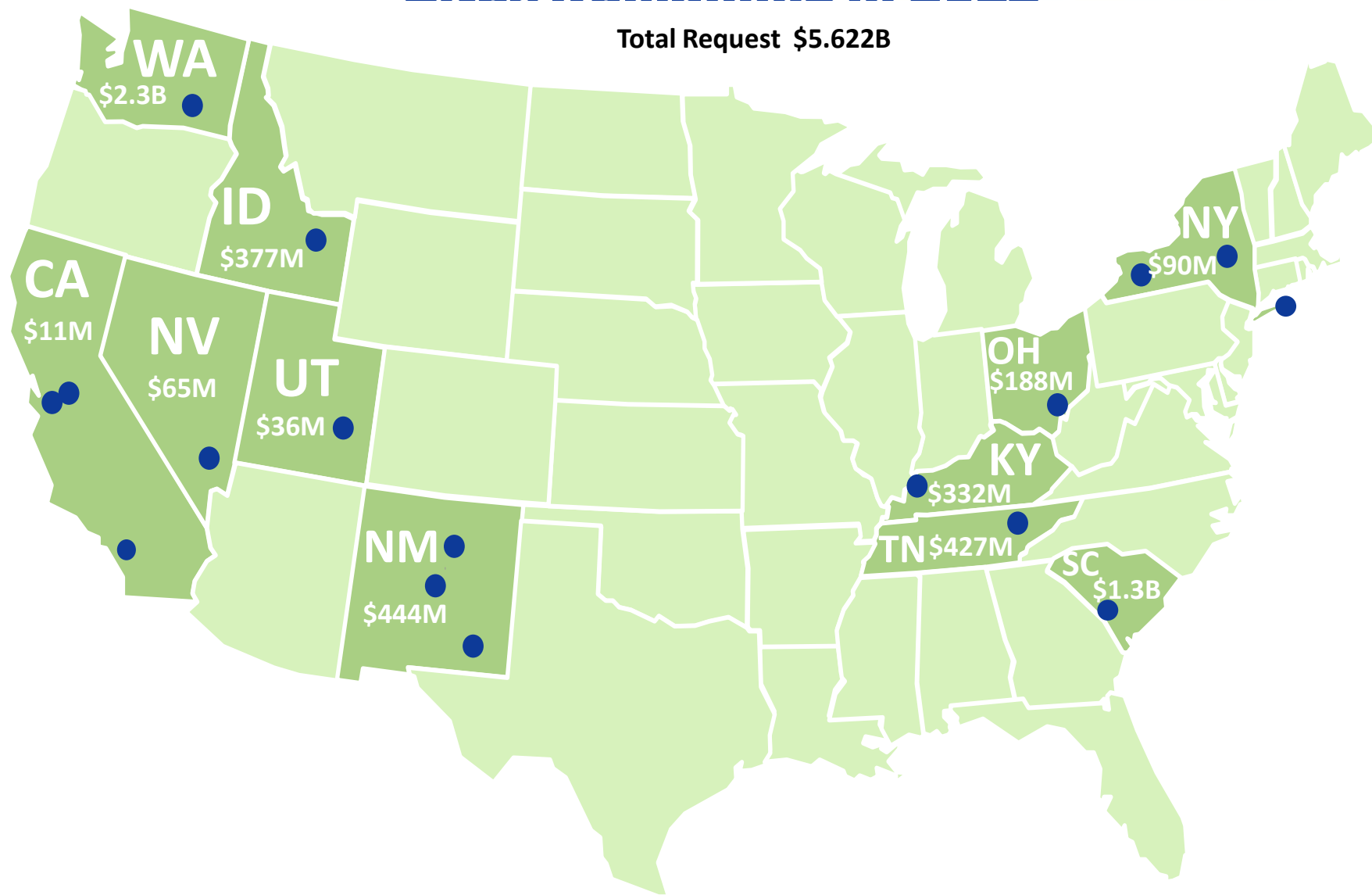
\* Reflects Administration's proposal to reauthorize contributions to the Uranium Enrichment Decontamination and Decommissioning Fund

# EM's FY 2014 Budget Request: Funding by Site





# EM's FY 2014 Budget Request: Funding by State



# The EM Cleanup Program: What We Do, How We Do It, and Why

EM is responsible for cleaning up some of the most dangerous substances known to humanity.

EM is building on past successes to complete ambitious remediation projects and treatment facilities.



EM operates one-of-a-kind nuclear facilities to manage high-level radioactive waste and dispose of materials like plutonium.

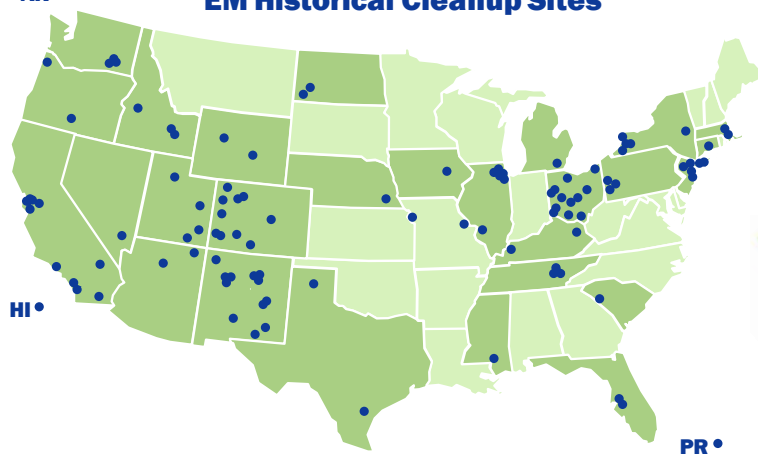
EM cleanup addresses the environmental legacy of America's nuclear weapons research and production complex.

# EM Has Significantly Reduced Risks to the Environment and Public

Completed cleanup on 90 of 107 former nuclear weapons and research sites

AK •

**EM Historical Cleanup Sites**



**Sites Remaining in 2012**



**HLW Tank**



Immobilized over 5 million gallons of radioactive liquid tank waste (enough to fill over seven Olympic-sized swimming pools)



*Former plutonium storage vaults*

Packaged 100% of EM's plutonium inventories for storage and permanent disposition (over 5,000 containers)



# Safety is EM's Top Priority



- ❖ EM conducts cleanup within a “Safety First” culture that integrates environmental, safety, and health requirements and controls into all work activities. This ensures protection to the workers, public, and the environment.
- ❖ Worker injury rates for EM cleanup work are significantly lower than averages in comparable industries and have decreased by about one third from FY 2009 to FY 2012.
- ❖ EM is further strengthening its organizational safety culture through several programs, including training over 850 senior federal and contractor managers in Leadership for a Safety Conscious Work Environment.



# FY 2014 Funding is Necessary to Meet Enforceable Regulatory Commitments

Court rules that DOE is not exempt from environmental laws and regulations.

1984

Due to this ruling, federal and state regulators now have the authority to require DOE to meet current environmental standards.

DOE enters into enforceable agreements with regulators to bring sites into compliance over time.

Late  
1980s

Late  
1980s to  
Present

DOE successfully meets an annual average of 90% of the enforceable cleanup milestones stipulated under these agreements

EM requests \$5.6 billion in budget authority to perform cleanup in accordance with our regulatory commitments.

2014

Impact of  
Compliance

DOE honors its legal obligation to remediate environmental contamination in a timely and safe manner.

Impact of Non-  
Compliance

DOE subject to fines of up to **\$10,000 per day** for each missed milestone in FY 2014.

The FY 2014 requested funding level positions the EM program to meet enforceable milestones due in FY 2014.

# Where Does Each Dollar of Funding Go?

## Funding by EM Mission Area in FY 2014

### Radioactive Tank Waste

\$ 1,933M / 34%

Special Nuclear  
Materials and Used  
Nuclear Fuel\*\*  
\$ 906M / 16%

Soil and  
Groundwater  
\$ 492M / 9%



### Facility D&D

\$ 1,095M / 19%

Transuranic &  
Solid Waste  
\$ 804M / 14%

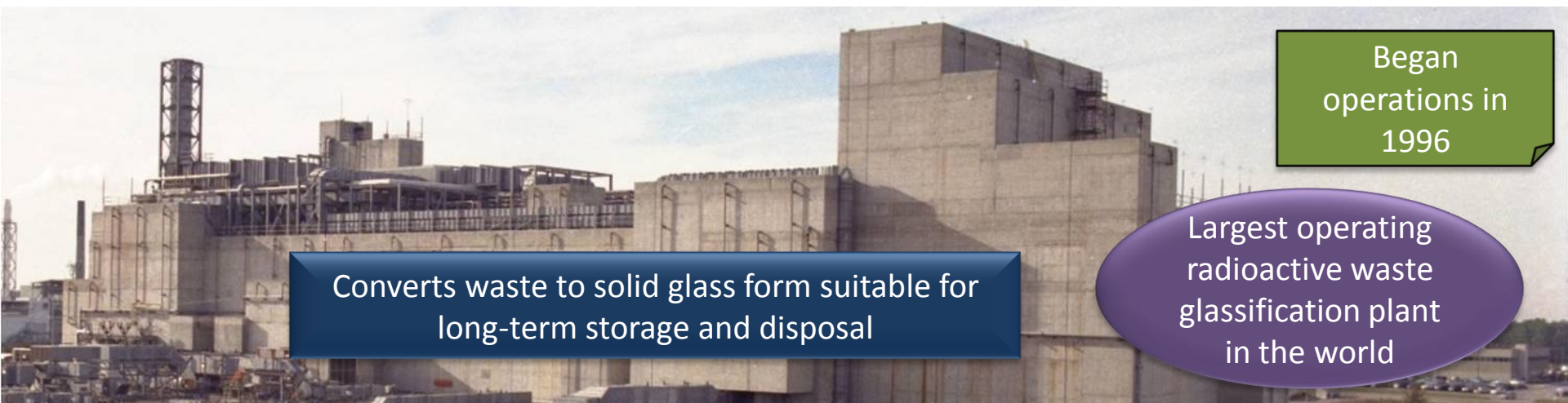
Essential Site  
Services\*  
\$ 392M / 7%

\*Includes Program Direction, Program Support, TDD, Post Closure Administration and Community and Regulatory Support

\*\*Includes Safeguards and Security



# The Radioactive Liquid Waste Challenge: How EM is Making Progress Today

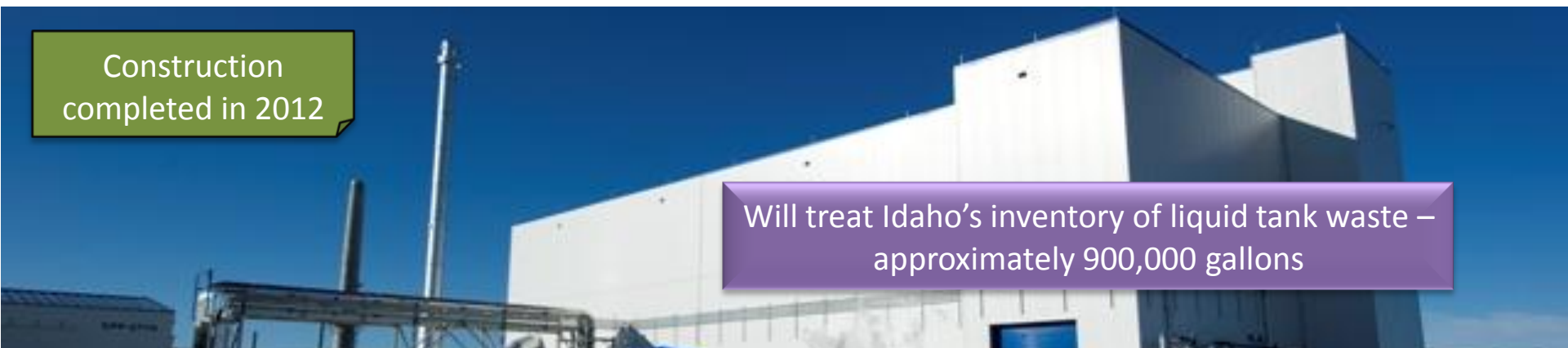


Began  
operations in  
1996

Converts waste to solid glass form suitable for  
long-term storage and disposal

Largest operating  
radioactive waste  
glassification plant  
in the world

Defense Waste Processing Facility – Aiken, SC



Construction  
completed in 2012

Will treat Idaho's inventory of liquid tank waste –  
approximately 900,000 gallons

Integrated Waste Treatment Unit – Idaho Falls, ID



# Radioactive Liquid Waste in FY14 and Beyond

FY 2014 Funding: \$1,933M (34% of EM Total)



## Waste Treatment and Immobilization Plant – Richland, WA

### Major Radioactive Liquid Tank Waste Accomplishments Planned for FY 2014

- ❖ Complete construction of two of the Waste Treatment and Immobilization Plant's five major facilities.
- ❖ At the Savannah River Site, package 100 canisters of high level waste at the Defense Waste Processing Facility.
- ❖ Complete retrieval of radioactive liquid waste from the last 10 single shell tanks in Hanford's Tank Farm C.
- ❖ Continue construction of the Salt Waste Processing Facility, which will allow for the remediation of the salt portion of the Savannah River Site's radioactive liquid tank waste.
- ❖ Continue closure activities of two tanks at Savannah River Site.



# The Facility Decommissioning Challenge: How EM is Making Progress Today

Before start of  
demolition in 2008

One mile long  
from end to end

Demolition progress  
as of September 2012

K-25 Facility –  
Oak Ridge, TN

World's largest building under  
one roof (at time of construction)

Constructed  
during the FDR  
administration

Major interior  
radioactive  
contamination



# Facility Decommissioning in FY14 and Beyond

FY 2014 Funding: \$1,095M (19% of EM Total)

Facility total area larger than  
450 football fields put  
together

Constructed during  
the Eisenhower  
administration

Former uranium  
enrichment  
facility



## Portsmouth Gaseous Diffusion Plant – Piketon, OH

### Major Facility Decommissioning Accomplishments Planned for FY 2014

- ❖ Complete deactivation and decommissioning of 36 nuclear, radioactive and industrial facilities across the country.
- ❖ Initiate decontamination and decommissioning of two key contaminated EM facilities: Oak Ridge's K-27 Building and Richland's Building 324.



# The Nuclear Materials and Used Fuel Challenge: How EM is Making Progress Today

Supports national security goals by converting weapons-grade uranium into an energy source

The only production-scale nuclear chemical separations plant operational in the US

Processes transuranic waste for disposition

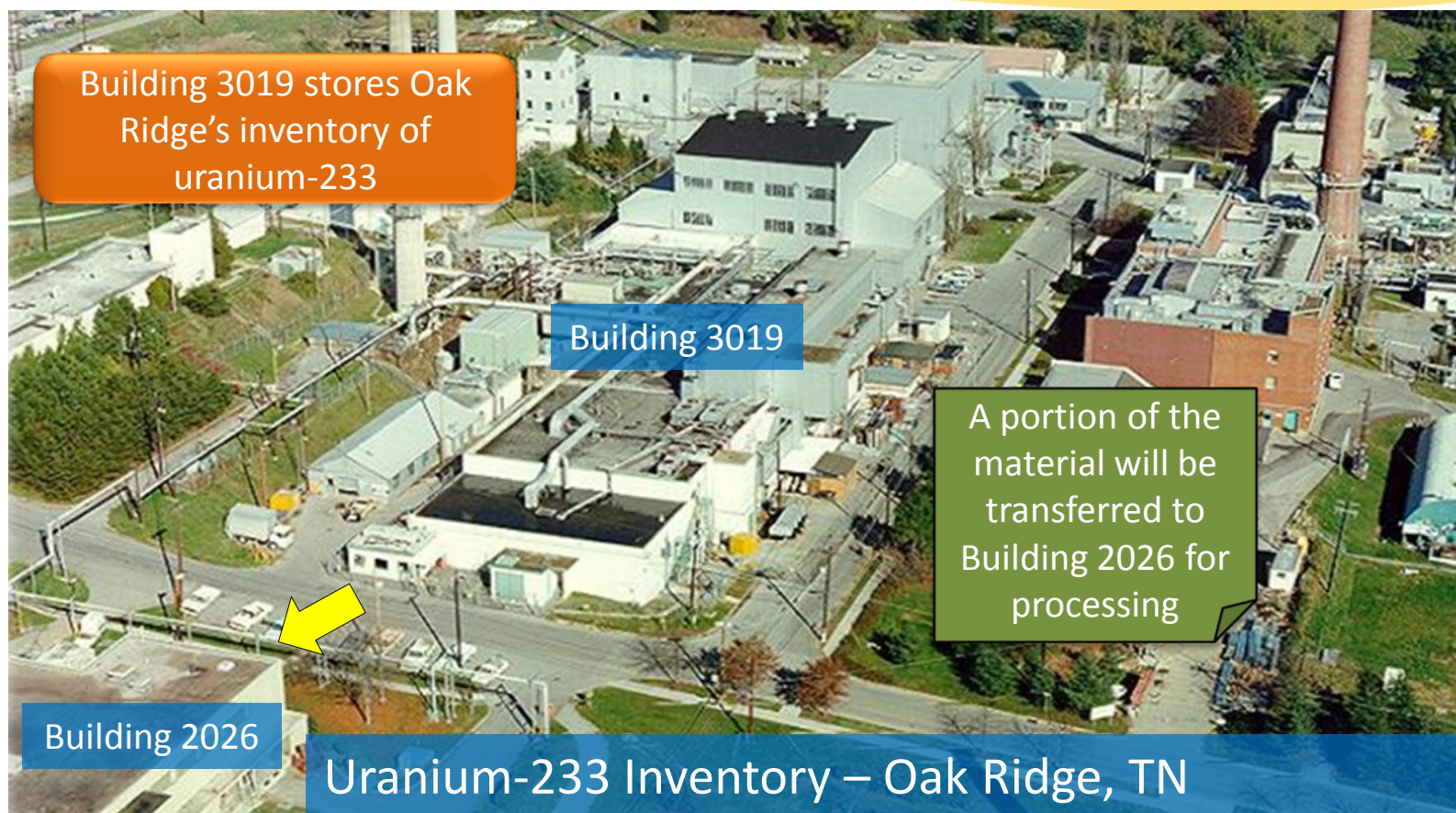


H Canyon Facility – Aiken, SC



# Nuclear Materials and Used Fuel in FY14 and Beyond

FY 2014 Funding: \$906M (16% of EM Total)

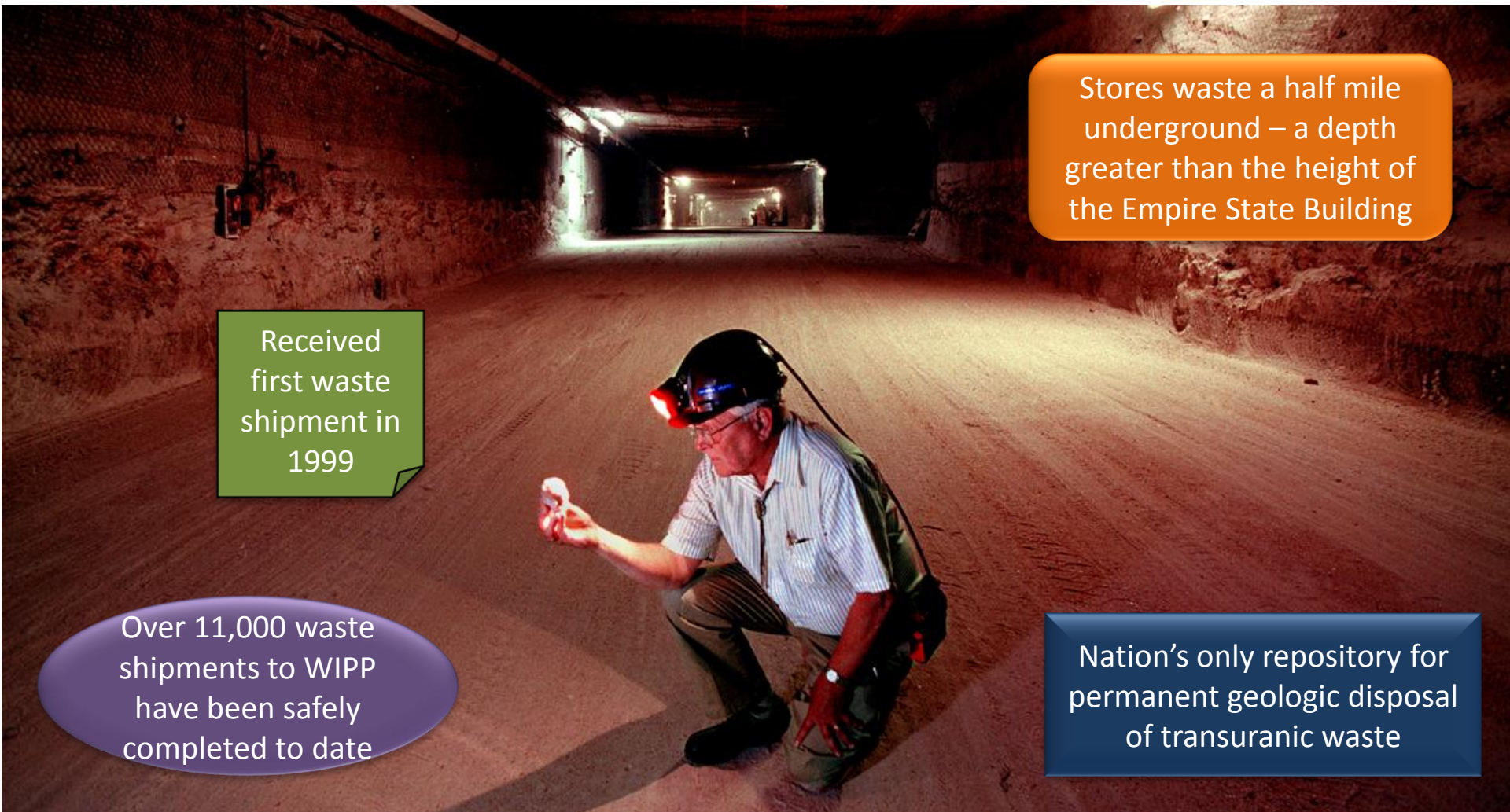


## Major Nuclear Materials and Spent Fuel Accomplishments Planned for FY 2014

- ❖ Continue disposition of Oak Ridge's inventory of uranium-233.
- ❖ Continue to safely store and monitor over 5,000 containers of plutonium and nearly 2,500 metric tons of spent nuclear fuel at several sites.
- ❖ Convert and package over 30,000 metric tons of depleted uranium at the Paducah and Portsmouth sites.



# The Transuranic Waste Challenge: How EM is Making Progress Today



Stores waste a half mile underground – a depth greater than the height of the Empire State Building

Received first waste shipment in 1999

Over 11,000 waste shipments to WIPP have been safely completed to date

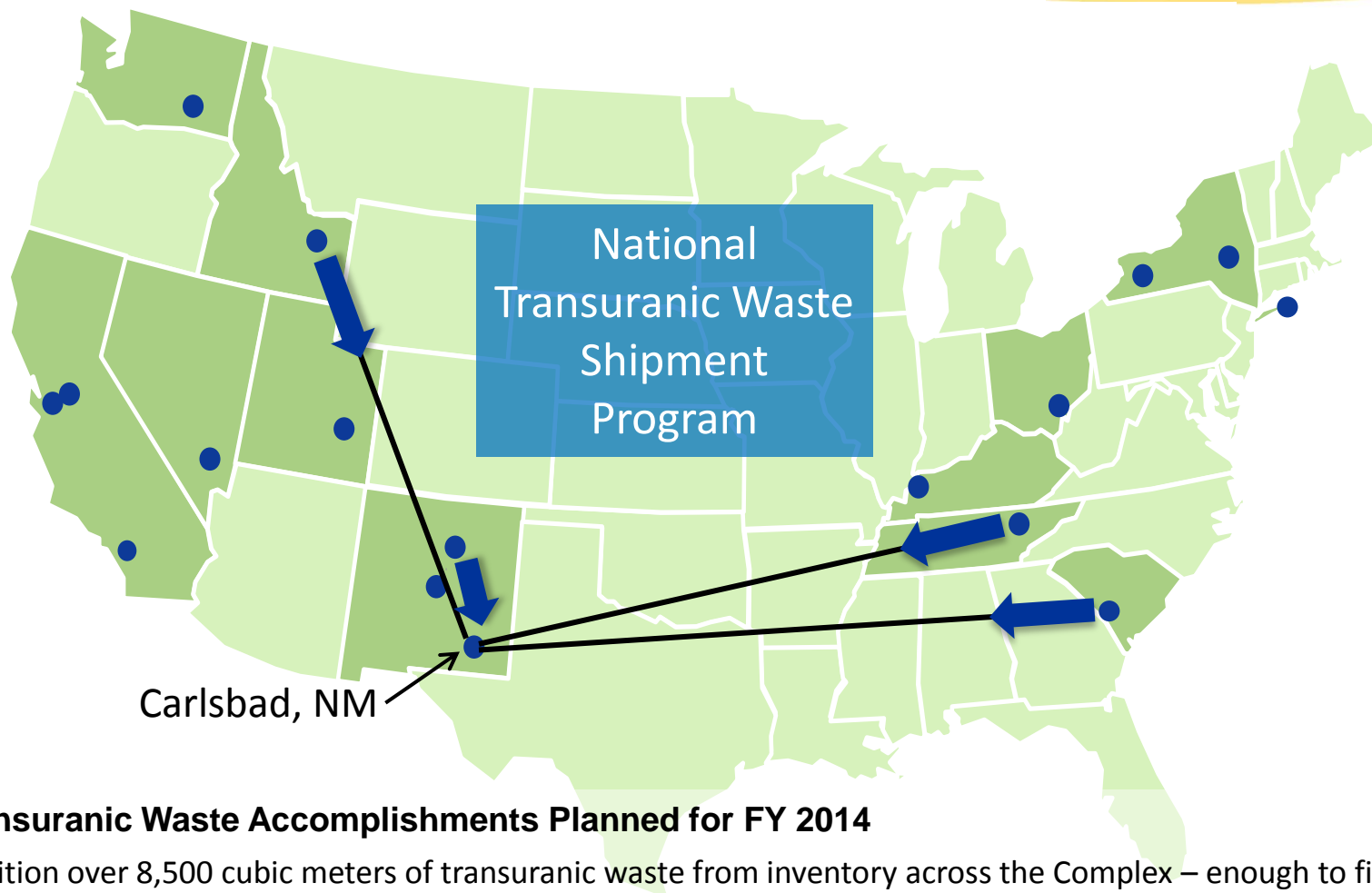
Nation's only repository for permanent geologic disposal of transuranic waste

Waste Isolation Pilot Plant – Carlsbad, NM



# Transuranic Waste in FY14 and Beyond

FY 2014 Funding: \$804M (14% of EM Total)



Carlsbad, NM

## Major Transuranic Waste Accomplishments Planned for FY 2014

- ❖ Disposition over 8,500 cubic meters of transuranic waste from inventory across the Complex – enough to fill over three Olympic-sized swimming pools.
- ❖ Provide transportation services for over 850 shipments of transuranic waste to WIPP per year – equivalent to nearly one waste shipment every ten hours for an entire year.

# The Soil and Groundwater Remediation Challenge: How EM is Making Progress Today

Designed  
operational rate  
of 2,500 gallons  
of water treated  
per minute

Removes radioactive  
contaminants from  
groundwater, as well  
as nitrates, metals  
and organic  
contaminants

Will treat an  
estimated 25  
billion gallons  
of groundwater




200 West Groundwater Treatment System – Richland, WA



# Soil and Groundwater in FY14 and Beyond

FY 2014 Funding: \$492M (9% of EM Total)



Cleanup is required in sixteen former repositories for radioactive, hazardous and other waste

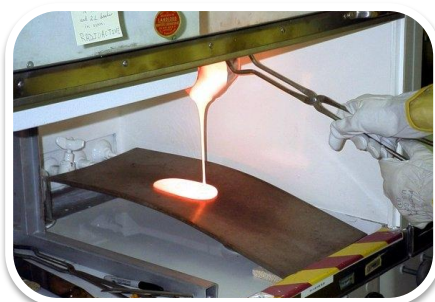
Remediation of Manhattan Project-era waste repositories reduces environmental risks

## Material Disposal Areas – Los Alamos, NM

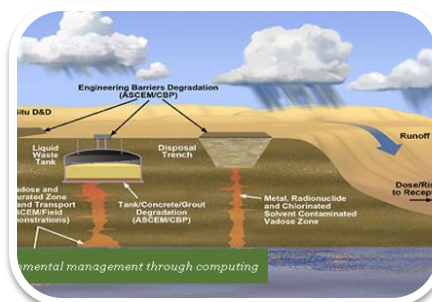
### Major Soil and Groundwater Accomplishments Planned for FY 2014

- ❖ Remediate nearly 125 distinct site areas with soil and/or groundwater contamination across the nation.
- ❖ With the completion of EM's soil and groundwater cleanup work at the SLAC and Brookhaven National Laboratories, transfer site surveillance and maintenance activities to the DOE Office of Science.
- ❖ Continue remediation of Hanford's 618-10 Burial Ground, one of the site's most challenging and hazardous contamination sites.

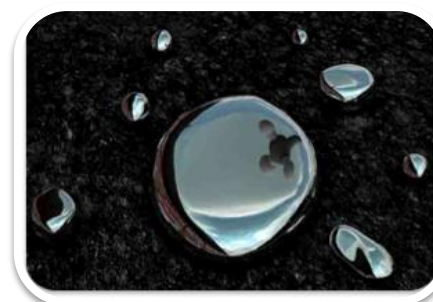




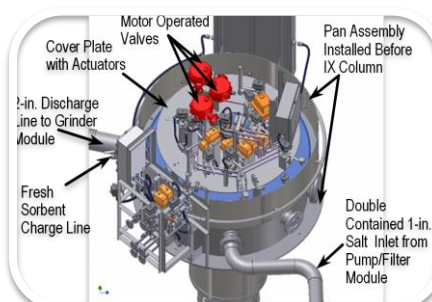
Maximizing waste  
loading in glass



Groundwater modeling



Mercury remediation



Separations technologies

After 25 years of cleanup progress, the EM program's challenges have changed significantly. In response to this changing environment, EM must take the opportunity to strategically refocus our cleanup program, maximizing all of our resources to best serve the American people.

## Key Challenges Facing EM

- ❖ Along with other federal programs, EM is facing an uncertain fiscal environment.
- ❖ Major technical challenges have emerged, particularly for large construction projects.

## The Path Forward

- ❖ Partner with regulators, tribal nations and stakeholders to align cleanup priorities and commitments with expected performance and funding levels.
- ❖ In close consultation with stakeholders, work to optimize existing waste disposal processes and systems.
- ❖ Improve project and contract management.
- ❖ Invest in targeted, applied technology development in areas where cleanup depends on the use of new technologies and where innovative technologies can reduce the risk and cost of cleanup.